

**LISTING OF CLAIMS**

1. (Currently Amended) Apparatus for generating an encrypted data stream from an audio signal, comprising:

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an encoder for encoding the audio signal in order to generate a data stream with a predefined data stream syntax as output signal;

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an ~~encryption means~~encryptor coupled with the encoder for influencing encoder internal data in a uniquely reversible manner based on a key such that the generated encrypted data stream comprises payload information differing from payload information of a data stream that would be generated by the apparatus without the presence of the ~~encryption means~~encryptor and that the generated encrypted data stream

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comprises the predefined data stream syntax,

wherein said encoder is an encoder for audio signals, comprising:

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an analysis filter bank for converting the audio signal from the time domain into a spectral representation in order to obtain spectral values;

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a ~~quantizing means~~quantizer for quantizing the spectral values under consideration of a psychoacoustic model; and

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an entropy encoder arranged to carry out an entropy encoding of the quantized spectral values via a plurality of predefined code tables wherein each code table for the entropy encoding of quantized spectral values is provided in a frequency band and wherein at least one frequency band comprises two or more quantized spectral values, and

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wherein said ~~encryption means~~encryptor is arranged to resort the two or more quantized spectral values in the frequency band comprising two or more quantized spectral values having an associated code table based on the key.



2. (Currently Amended) Apparatus according to claim 1, wherein said ~~encryption means~~encryptor is further arranged to resort the two or more quantized spectral values based on the key such that the encoded data stream has the same bit length as a data stream that would be generated by said apparatus without the presence of said ~~encryption means~~encryptor.  
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3. (Currently Amended) Apparatus according to claim 1, wherein the ~~encryption means~~encryptor is arranged in order to resort the two or more quantized values merely so strongly based on the key that the payload information of the encrypted data stream differs only so strongly from the payload information of a data stream that would be generated without the presence of the ~~encryption means~~encryptor that a decoder that does not possess the key provides a decoded output signal based on the encrypted data with a quality that is lower than the quality that the decoder would provide if he possessed the key, wherein however, a minimum quality is ensured.  
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4. (Currently Amended) Apparatus according to claim 1,  
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in which the ~~quantizing means~~quantizer is arranged for generating the spectral values as main information and scale factors as side information each of which is associated to at least one quantized spectral value; and  
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in which said ~~encryption means~~encryptor is further arranged to influence the scale factors generated by said ~~quantizing means~~quantizer based on the key.
5. (Currently Amended) Apparatus according to claim 1, wherein said ~~encryption means~~encryptor is arranged to link the quantized spectral values in the frequency band, which includes two or more spectral values with a pseudo random bit sequence generated based on the key as start value via an EXCLUSIVE-OR-link.  
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6. (Original) Apparatus according to claim 1, wherein merely least significant bits of spectral values are linked with a pseudo random bit sequence.  
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7. (Original) Apparatus according to claim 1, wherein said quantized spectral values are signed and wherein said ~~encryption means~~encryptor is further arranged to change the signs of quantized spectral values based on the key.
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8. (Original) Apparatus according to claim 1, wherein said entropy encoder is arranged such that it comprises at least one code table which is an unsigned code table such that a sign for a code word from the code table is written separately from the code word into the payload information, wherein said ~~encryption means~~encryptor is further arranged to change the sign of at least one quantized spectral value based on the key before said entropy encoding of said quantized spectral values.
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9. (Original) Apparatus according to claim 1, wherein at least one code table of the plurality of code tables is a multidimensional code table, wherein a code word represents a plurality of quantized spectral values, wherein said ~~encryption means~~encryptor is arranged to resort groups of quantized spectral values, wherein one group of spectral values has so many quantized spectral values as encoded by a code word of said multidimensional code table.
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10. (Original) Apparatus according to claim 1, wherein said encoder has a plurality of sub-blocks connected with a bit stream multiplexer multiplexing the data output from the single sub-blocks according to the predefined data stream syntax in order to obtain the output data of said encoder.
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11. (Currently Amended) Apparatus for generating a second data stream encrypted based on a second key from a first data stream encrypted based on a first key, wherein said first data stream is an audio signal encoded by using an encoder with a predefined data stream syntax, wherein said first data stream is encrypted such that that two or more quantized spectral values in a frequency band comprising two or more quantized spectral values and having an associated code table have been ~~resorted~~scrambled based on the first key, wherein after the ~~resorting~~scrambling an entropy encoding of the quantized spectral values has been carried out via a plurality of predefined code tables, wherein each code table is provided for the entropy encoding of
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quantized spectral values in a frequency band and wherein at least one frequency band comprises the two or more quantized spectral values, comprising:

5 a partial decoder for reversing part of the encoding such that the ~~resorted~~scrambled two or more spectral values are present;

a ~~decryption means~~decryptor for decrypting the ~~resorted~~scrambled two or more spectral values by reversing the ~~resorting~~scrambling based on the  
10 first key;

an ~~encryption means~~encryptor for influencing the sequence of the two or more spectral values of the frequency band that has an associated code table based on the second key;

15 a partial encoder for carrying out part of the encoding that has been reversed by the partial decoder in order to generate the second data stream encrypted based on the second key, wherein the second data stream has the predefined data stream syntax.

20 12. (Currently Amended) Apparatus for generating a second data stream encrypted based on a key from a first data stream, wherein said first data stream is an audio signal encoded using an encoder with a predefined data stream syntax, comprising:

25 a partial decoder for reversing part of the encoding such that quantized spectral values of the audio signal are present;

30 an ~~encryption means~~encryptor for ~~resort~~scrambling two or more quantized spectral values in a frequency band comprising two or more spectral values based on the first key, wherein one of a plurality of predefined code tables is associated to the frequency band for the entropy encoding, wherein each code table is provided for an entropy encoding of quantized spectral values in a frequency band and wherein  
35 at least one frequency band comprises the two or more quantized spectral values, wherein the ~~encryption means~~encryptor is arranged to ~~resort~~scramble the quantized spectral values that have the same associated code table;



5 a partial encoder for carrying out part of the encoding that has been reversed by the partial decoder in order to generate the data stream encrypted based on the key, wherein the second data stream has the predefined data stream syntax.

10 13. (Currently Amended) Apparatus for generating a decrypted second data stream from a first data stream encrypted based on a key, wherein said first data stream is an audio signal with a predefined data stream syntax encoded by using an encoder, wherein said first data stream is encrypted such that at least two or more quantized spectral values in a frequency band have been ~~resorted~~scrambled based on the first key wherein a plurality of predefined code tables for an entropy encoding is associated with the frequency band whose quantized spectral values have been ~~resorted~~scrambled, wherein each code table for the entropy encoding is provided for the entropy encoding of quantized spectral values in a frequency band and wherein at least one frequency band comprises the two or more quantized spectral values, comprising:

20 a partial decoder for reversing part of the encoding such that the ~~resorted~~scrambled two or more quantized spectral values are present, wherein the ~~resorted~~scrambled two or more quantized spectral values belong to a frequency band that has an associated code table;

25 a ~~decryption means~~decryptor for decrypting the ~~resorted~~scrambled two or more quantized spectral values by reversing the ~~resort~~scrambling based on the key;

30 a partial encoder for carrying out part of the encoding that has been reversed by the partial decoder in order to generate the second data stream with the predefined data stream syntax.

35 14. (Original) Apparatus according to claim 11, wherein said partial decoder has a bit stream demultiplexer, wherein said encoder internal data are the output data from the bit stream demultiplexer.

15. (Original) Apparatus according to claim 14, wherein said partial decoder further comprises an entropy decoder following the bit stream



demultiplexer, wherein said encoder internal data are the output data from the entropy decoder.

5 16. (Original) Apparatus according to claim 11, wherein scale factors are influenced apart from the two or more quantized spectral values.

10 17. (Currently Amended) Apparatus for generating a decrypted audio signal from an encrypted data stream comprising quantized spectral values of an audio signal being ~~resorted~~scrambled and afterwards entropy encoded within a frequency band in a uniquely reversible manner, wherein the frequency band is defined that it has an associated code table from a plurality of code tables for the entropy encoding, wherein the encrypted data stream comprises payload information differing from payload information of a non-encrypted data stream and wherein said  
15 encrypted data stream comprises ~~the same a~~ a data stream syntax similar to a data stream syntax of as a non-encrypted data stream, comprising:

20 a decoder for decoding input data in order to generate decoded output data, wherein the decoder comprises an entropy decoder for reversing the entropy encoding in order to obtain the ~~resorted~~scrambled quantized spectral values; and

25 a ~~decryption means~~decryptor for influencing the ~~resorted~~scrambled spectral values based on a key in order to reverse the uniquely reversible ~~resort~~scrambling which has been carried out in an apparatus for generating an encrypted data stream in order to obtain the decrypted audio and/or video signal.

30 18. (Original) Apparatus according to claim 17, wherein said decoder further comprises:

35 a plurality of functional blocks coupled with a bit stream demultiplexer conducting parts of the data stream to the single blocks according to the predefined data stream syntax.

19. (Original) Apparatus according to claim 18, wherein said decoder further comprises:



a synthesis filter bank in order to convert a spectral representation of the audio signal into a timely representation.

20. (Currently Amended) Method for generating an encrypted data stream from an audio signal, comprising:

encoding the audio signal in order to generate a data stream with a predefined data stream syntax as output signal;

encrypting encoder internal data by influencing the same in a uniquely reversible manner based on a key such that the generated encrypted data stream comprises payload information differing from payload information of a data stream that would be generated without the step of encrypting and that the generated encrypted data stream comprises the predefined data stream syntax,

wherein in the step of encoding an audio signal is encoded, comprising:

converting the audio signal from the time domain into a spectral representation in order to obtain spectral values;

quantizing the spectral values under consideration of a psychoacoustic model; and

entropy encoding of the spectral values via a plurality of predefined code tables wherein each code table for the entropy encoding of quantized spectral values is provided in a frequency band and wherein at least one frequency band comprises two or more quantized spectral values, and

wherein said step of encrypting is carried out to ~~resort~~scramble the two or more quantized spectral values in the frequency band comprising two or more quantized spectral values having an associated code table based on the key.

21. (Currently Amended) Method for generating a second data stream encrypted based on a second key from a first data stream encrypted



based on a first key, wherein said first data stream is an audio signal with a predefined data stream syntax encoded by using an encoder, wherein said first data stream is encrypted such that two or more quantized spectral values in a frequency band comprising two or more quantized spectral values and having an associated code table have been  
 5 resortedscrambled based on the first key, wherein after the resortscrambling an entropy encoding of the quantized spectral values has been carried out via a plurality of predefined code tables, wherein each code table is provided for the entropy encoding of quantized spectral  
 10 values in a frequency band and wherein at least one frequency band comprises the two or more quantized spectral values, comprising:

reversing part of the encoding such that the resortedscrambled two or more spectral values are present;

15 decrypting the resortedscrambled two or more spectral values by reversing the resortscrambling based on the first key;

encrypting by influencing the sequence of the two or more spectral values of the frequency band that has an associated code table based on  
 20 the second key;

carrying out the part of the encoding that has been reversed by the step of reversing in order to generate the second data stream encrypted  
 25 based on the second key, wherein the second data stream has the predefined data stream syntax.

22. (Currently Amended) Method for generating a second data stream encrypted based on a key from a first data stream, wherein said first data stream is an audio signal with a predefined data stream syntax encoded  
 30 by using an encoder, comprising:

reversing part of the encoding such that quantized spectral values of the audio signal are present;

35 encrypting by resortscrambling two or more quantized spectral values in a frequency band comprising two or more spectral values based on the first key, wherein one of a plurality of predefined code tables is



associated to the frequency band for the entropy encoding, wherein each code table is provided for an entropy encoding of quantized spectral values in a frequency band and wherein at least one frequency band comprises the two or more quantized spectral values, wherein the encryption means encryptor is arranged to ~~resort~~scramble the quantized spectral values that have the same associated code table;

carrying out part of the encoding that has been reversed by the partial decoder in order to generate the data stream encrypted based on the key, wherein the second data stream has the predefined data stream syntax.

23. (Currently Amended) Method for generating a decrypted second data stream from a first data stream encrypted based on a key, wherein said first data stream is an audio signal with a predefined data stream syntax encoded by using an encoder, wherein said first data stream is encrypted such that at least two or more quantized spectral values in a frequency band have been ~~resorted~~scrambled based on the first key, wherein a plurality of predefined code tables for an entropy encoding is associated with the frequency band whose quantized spectral values have been ~~resorted~~scrambled, wherein each code table for the entropy encoding of quantized spectral values is provided in a frequency band and wherein at least one frequency band comprises the two or more quantized spectral values, comprising:

reversing part of the encoding such that the ~~resorted~~scrambled two or more quantized spectral values are present, wherein the ~~resorted~~scrambled two or more quantized spectral values belong to the frequency band that has an associated code table;

decrypting the ~~resorted~~scrambled two or more quantized spectral values by reversing the ~~resort~~scrambling based on the key;

carrying out part of the encoding that has been reversed by the step of reversing in order to generate the second data stream with the predefined data stream syntax.



24. (Currently Amended) Method for generating a decrypted audio signal from an encrypted data stream comprising quantized spectral values of an audio signal being ~~resorted~~scrambled and afterwards entropy encoded within a frequency band in a uniquely reversible manner, wherein the frequency band is defined by having an associated code table from a plurality of code tables for the entropy encoding wherein the encrypted data stream comprises payload data differing from payload data of a non-encrypted data stream and wherein the encrypted data stream comprises ~~the same~~a data stream syntax similar to a data stream syntax of a non-encrypted data stream, comprising:

decoding input data in order to generate decoded output data, wherein in the step of decoding an entropy encoding for reversing the entropy encoding is carried out in order to obtain the ~~resorted~~scrambled quantized spectral values; and

decrypting by influencing the ~~resorted~~scrambled quantized spectral values based on a key in order to reverse the uniquely reversible ~~resort~~scrambling that has been carried out by generating an encrypted data stream in order to obtain the decrypted audio signal.

25. (Currently Amended) Apparatus for generating an encrypted data stream from an audio signal, comprising:

an encoder for encoding the audio signal in order to generate a data stream with a predefined data stream syntax as output signal;

an ~~encryption means~~encryptor coupled with the encoder for influencing encoder internal data of the encoder in a uniquely reversible manner based on a key such that the generated encrypted data stream comprises payload information differing from payload information of a data stream that would be generated by the apparatus without the presence of the ~~encryption means~~encryptor and that the generated encrypted data stream comprises the predefined data stream syntax,

wherein said encoder is an encoder for audio signals, comprising:



an analysis filter bank for converting the audio signal from the time domain into a spectral representation in order to obtain spectral values;

5           a ~~quantizing means~~quantizer for quantizing the spectral values under consideration of a psychoacoustic model; and

10           an entropy encoder arranged to carry out an entropy encoding of the spectral values in order to obtain a sequence of code words wherein the sequence of code words represents an entropy encoded version of the audio signal, and

15           wherein said ~~encryption means~~encryptor is arranged to ~~resort~~scramble the sequence of code words by changing an order of code words based on the key.

26. (Currently Amended) Apparatus according to claim 25, wherein said ~~encryption means~~encryptor is arranged in order to ~~resort~~scramble the code words based on the key merely so strongly that the payload information of the encrypted data stream differs only so strongly from the payload information of a data stream that would be generated without the presence of the ~~encryption means~~encryptor that a decoder that does not possess the key provides a decoded output signal based on the encrypted data with a quality that is lower than the quality that the decoder would provide if he possessed the key, wherein however, a minimum quality is ensured.

27. (Original) Apparatus according to claim 25, wherein always two adjacent code words are exchanged with each other.

30           28. (Currently Amended) Apparatus for generating a second data stream encrypted based on a second key from a first data stream encrypted based on a first key, wherein said first data stream is an audio signal with a predefined data stream syntax encoded using an encoder, wherein  
35           said first data stream is encoded such that a sequence of code words generated by entropy encoding of quantized spectral values has been ~~resorted~~scrambled by changing an order of code words based on the first key, comprising:



a partial decoder for reversing part of the encoding such that the ~~resorted~~scrambled sequence of code words is present;

5 a ~~decryption means~~decryptor for reversing the ~~resort~~scrambling based on the first key;

an ~~encryption means~~encryptor for ~~resort~~scrambling the sequence of code words based on the second key by changing an order of code words;

10 a partial encoder for carrying out part of the encoding that has been reversed by the partial decoder in order to generate the second data stream encrypted based on the second key, wherein the second data stream has the predefined data stream syntax.

15 29. (Currently Amended) Apparatus for generating a second data stream encrypted based on a key from a first data stream, wherein said first data stream is an audio signal with a predefined data stream syntax encoded by using an encoder, comprising:

20 a partial decoder for reversing part of the encoding such that a sequence of code words generated by entropy encoding of quantized spectral values is present;

25 an ~~encryption means~~encryptor for ~~resort~~scrambling the sequence of code words based on the key by changing an order of code words;

30 a partial encoder for carrying out part of the encoding that has been reversed by the partial decoder in order to generate the data stream encrypted based on the key, wherein the second data stream has the predefined data stream syntax.

35 30. (Currently Amended) Apparatus for generating a decrypted second data stream from a first data stream encrypted based on a key, wherein said first data stream is an audio signal with a predefined data stream syntax encoded by using an encoder, wherein said first data stream is encrypted such that a sequence of code words generated by entropy encoding of



quantized spectral values has been ~~resorted~~scrambled by changing an order of code words based on the first key, comprising:

5 a partial decoder for reversing part of the encoding such that the ~~resorted~~scrambled sequence of code words is present;

a ~~decryption—means~~decryptor for reversing the ~~resort~~scrambling of the sequence of code words based on the key;

10 a partial encoder for carrying out part of the encoding that has been reversed by the partial decoder in order to generate the second data stream with the predefined data stream syntax.

15 31. (Currently Amended) Apparatus for generating a decrypted audio signal from an encrypted data stream comprising a sequence of code words generated by entropy encoding of quantized spectral values ~~resorted~~scrambled in a uniquely reversible manner by changing an order of the code words wherein the encrypted data stream comprises payload data differing from payload data of a non-encrypted data stream and  
20 wherein the encrypted data stream comprises ~~the same~~a data stream syntax similar to a data stream syntax of a non-encrypted data stream, comprising:

25 a decoder for decoding input data in order to generate decoded output data; and

30 a ~~decryption—means~~decryptor for influencing the ~~resorted~~scrambled sequence of code words based on a key in order to reverse the ~~resort~~scrambling that has been carried out in an apparatus for generating an encrypted data stream in order to obtain the decrypted audio signal.

32. (Currently Amended) Method for generating an encrypted data stream from an audio signal, comprising:

35 encoding the audio signal in order to generate a data stream with a predefined data stream syntax as output signal;



encrypting by influencing encoder internal data in the step of encoding in a uniquely reversible manner based on a key such that the generated encrypted data stream comprises payload information differing from payload information of a data stream that would be generated by the apparatus without the presence of the ~~encryption means~~encryptor and that the generated encrypted data stream comprises the predefined data stream syntax,

wherein the step of encoding comprises:

converting the audio signal from the time domain into a spectral representation in order to obtain spectral values;

quantizing the spectral values under consideration of a psychoacoustic model; and

entropy encoding the spectral values in order to obtain a sequence of code words wherein the sequence of code words represents an entropy encoded version of the audio signal, and

wherein in said step of encrypting based on the key the sequence of code words is ~~resorted~~scrambled by changing an order of code words.

33. (Currently Amended) Method for generating a second data stream encrypted based on a second key from a first data stream encrypted based on a first key, wherein said first data stream is an encoded audio signal with a predefined data stream syntax, wherein said first data stream is encrypted such that a sequence of code words generated by entropy encoding quantized spectral values has been ~~resorted~~scrambled by changing an order of code words based on the first key, comprising:

reversing part of the encoding such that the ~~resorted~~scrambled sequence of code words is present;

reversing the ~~resort~~scrambling based on the first key;

decrypting by ~~resort~~scrambling the sequence of code words based on the second key;



carrying out part of the encoding that has been reversed in the step of reversing in order to generate the second data stream encrypted based on the second key, wherein the second data stream has the predefined data stream syntax.

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34. (Currently Amended) Method for generating a second data stream encrypted based on a key from a first data stream, wherein said first data stream is an audio signal encoded using an encoder with a predefined data stream syntax, comprising:

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reversing part of the encoding such that a sequence of code words generated by entropy encoding of spectral values is present;

15 encrypting by ~~resorting~~scrambling the sequence of code words based on the key by changing an order of code words;

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carrying out part of the encoding that has been reversed by the step of reversing in order to generate the data stream encrypted based on the key, wherein said second data stream has the predefined data stream syntax.

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35. (Currently Amended) Method for generating a decrypted second data stream from a first data stream encrypted based on a key, wherein said first data stream is an encoded audio signal with a predefined data stream syntax, wherein said first data stream is encrypted such that a sequence of code words generated by entropy encoding spectral values has been ~~resorted~~scrambled based by changing an order of code words on a first key, comprising:

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reversing part of the encoding such that the ~~resorted~~scrambled sequence of code words is present;

35 decrypting by reversing the ~~resorting~~scrambling of the sequence of code words based on the key;

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carrying out part of the encoding that has been reversed by the step of reversing in order to generate the second data stream with the predefined data stream syntax.

- 5 36. (Currently Amended) Method for generating a decrypted audio signal from  
an encrypted data stream comprising a sequence of code words  
generated by entropy encoding quantized spectral values  
10 ~~resorted~~scrambled by changing an order of code words in a uniquely  
reversible way wherein the encrypted data stream comprises payload  
data differing from payload data of a non-encrypted data stream and  
wherein the encrypted data stream comprises ~~the same~~a data stream  
syntax similar to a data stream syntax of a non-encrypted data stream,  
comprising:
- 15 decoding input data in order to generate decoded output data; and
- decrypted by influencing the ~~resorted~~scrambled sequence of code words  
based on a key in order to reverse the ~~resort~~scrambling that has been  
carried out in generating an encrypted data stream in order to obtain the  
20 decrypted audio signal.